



american
institute for
conservation

**Preserving Cultural
Heritage**

How Do I...

Care for Metal Objects

Introduction

Metals commonly used in art and historic objects include iron, copper and its alloys (i.e. brass, bronze), tin, lead, pewter, aluminum, zinc, silver, and gold. Each of these metals has unique properties and requirements for preservation, but these basic guidelines apply to all.

The main condition concerns with metal items are active corrosion, sometimes referred to as “tarnish,” and mechanical damage such as scratches, cracks, and breaks.

Handling

- › The natural oils in our hands are corrosive to metals, and notably can be seen when fingerprints become etched in shiny metal surfaces.
- › Metals should be handled with nitrile, latex, or cotton gloves, or even a clean cloth if gloves are not available.
- › Always lift metal objects from the base or strongest point, rather than by a handle. Handles can be a weak spot on a historic object and this could result in damage.
- › Remove your rings and jewellery before handling to prevent inadvertent scratching.

Storage Conditions and Environment

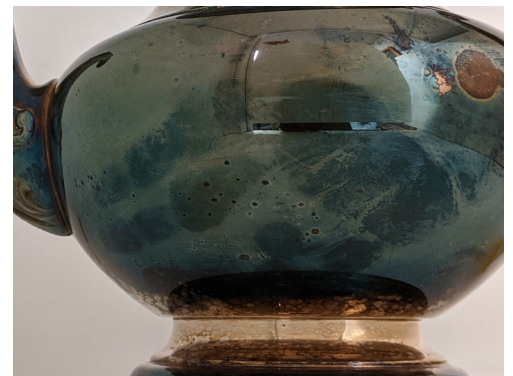
- › High humidity causes corrosion of most types of metal. Try to store your metal items in an environment that is stable and dry, with good ventilation and low humidity. Avoid storage in attics and basements.
- › Environmental pollutants, like dust or car exhaust, can also increase the risk of corrosion. For example, silver will tarnish more quickly with exposure to sulfur, which may be in woolen items. In order to protect your metal items, it's preferable to store them indoors, in an acid-free box or archival polyethylene bag.
- › Do not store metal items in PVC bags or sleeves.

Display

- › Display metal objects using materials that are inert and stable, such as acrylic, glass, or enamel-coated metal. Wood releases acidic gases, so if you can, avoid storing or displaying metal items on wood shelves or cabinets. If you can't, place an inert barrier between item and shelf.
- › It's better to display metal items behind a barrier to prevent unnecessary touching, which can cause wear and corrosion. If a metal item must be displayed outside, try to position it in an area protected from the elements.



Wear clean gloves when handling metal objects. Natural oils in our hands can cause damage like the handprint on the object below.



Use inert materials such as (left to right): acid free board, polyethylene foam sheet, Volara, Pacific Brand Silver Cloth, polyethylene bags, and humidification monitors.

Images courtesy members of AIC's Objects Specialty Group

Safe Use

- › After using metal tableware to serve or consume food, clean with soapy water to remove all food residue and thoroughly dry with a clean cotton towel to avoid corrosion.
- › Use glass or other inert containers inside of metal objects like vases to reduce exposure to moisture.

Common Concerns and Solutions

- › Not all corrosion is bad. A passive layer of corrosion may provide protection against other forms of damage.
- › Active corrosion is usually a cause for concern. Active corrosion looks different depending on the type of metal, the environment, and the cause of the corrosion. A corroded surface that is flaking, powdery, and falling off can indicate that active corrosion is occurring. If you suspect active corrosion or notice visible changes in the object, contact a conservator to determine next steps.
- › It may be appropriate to coat metal items in order to slow corrosion processes. Conservator can assess whether this would help.
- › Silver can be polished if you prefer the aesthetics of the white metal. Polishing is a process that removes a very fine layer of the silver surface. Repeated polishing can cause loss of fine detail and even complete removal of silver plating. Proper storage and a coating can help protect silver items from tarnish.

Cleaning and Maintenance

- › Metal items should be regularly dusted with a soft brush. Dust can retain moisture, increasing the risk of corrosion. Prevent scratches during dusting by covering sharp or metal parts of the brush with painters tape.

Emergency Response and Disasters

- › If water affects or submerges a metal object, immediately rinse the surface with clean water, then thoroughly dry the object with clean cotton or paper towels. Move the item to a dry, well-ventilated area.
- › If a metal object breaks, document and save each broken piece. A conservator may be able to repair the item.

When and How to Contact a Conservator

- › If you notice active corrosion, any changes in the appearance of your object, are interested in a special coating, or if the object breaks, contact a conservator who specializes in metal objects.
- › Use AIC's "Find a Professional" tool to locate a conservator in your area. Use the specialty "Objects" to identify the right conservator for the job. Read our Guide to Hiring a Conservator to learn more.

Useful Links and Resources

- › Places to buy archival storage: https://www.conservation-wiki.com/wiki/Conservation_Supply_Sources
- › CCI's Preventive conservation guidelines for collections: <https://www.canada.ca/en/conservation-institute/services/preventive-conservation/guidelines-collections/metal-objects.html>

Remember

- › Wash your hands with soap and water before and after handling.
- › Remove rings and other jewelry prior to handling.
- › Regularly inspect objects to ensure that they are in stable condition. Catching problems early can prevent major damage.



Copper corrosion products on brass furniture mounts.